BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
The 4.9 GHz Band Transferred from Federal Government Use	)	WT Docket No. 00-32
	)	

To: The Commission

COMMENTS OF APCO

The Association of Public-Safety Communications Officials-International, Inc. ("APCO") hereby submits the following comments in response to the Commission's *Further Notice of Proposed Rule Making,* FCC 02-47, released February 27, 2002,[1] in the above-captioned proceeding seeking public comment regarding the establishment of licensing and service rules in the 4.9 GHz band.

APCO is the nation's oldest and largest public safety communications organization. Most of APCO's over 15,000 individual members are state or local government employees who manage and operate police, fire, emergency medical, forestry conservation, highway maintenance, disaster relief, and other communications systems that protect the safety of life, health and property. These systems include radio communication operations, telecommunications and information networks, and Public Safety Answering Points (PSAPs).

[1] In the Matter of The 4.9 GHz Band Transferred from Federal Government Use, *Second Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 00-32, FCC 02-47 (Rel. Feb. 27, 2002) ("FNPRM").

I. THE COMMISSION SHOULD ADOPT THE DEFINITION OF "PUBLIC SAFETY SERVICES" CONTAINED IN SECTION 337(F) TO DETERMINE ELIGIBILITY TO USE THE 4.9 GHZ BAND.

The Commission seeks comment on the criteria it should use to determine eligibility to operate equipment within the 4.9 GHz band.[2] On this issue, the Commission struggles between adopting the narrower definition of "public safety services" contained in Section 337(f) of the Communications Act of 1934, as amended ("the Act"), regarding eligibility for 700 MHz band public safety spectrum,[3] and the broader definition of "public safety radio services" contained in Section 309(j)(2) of the Act regarding exemption from auctions.[4] For the reasons set forth below, the Commission must adopt the narrower and more traditional definition of "public safety services" in determining eligibility.

In 1997, Congress amended Section 309(j)(1) of the Communications Act of 1934 to require the Commission to award mutually exclusive applications for initial licenses or permits using competitive bidding procedures, except as provided in Section 309(j)(2).[5] Section 309(j)(2) provides that the competitive bidding authority does not apply to licenses or construction permits issued by the Commission for "public safety radio services," including private internal radio services used by State and local governments

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[2] FNPRM, ¶¶ 31-38.

[3] *See* Balanced Budget Act of 1997, Pub. L. No. 105-33, 111 Stat. 251 (1997), as codified at 47 U.S.C. § 337(f) ("BBA-97").

[4] 47 U.S.C. § 309(j)(1).

[5] *See* Implementation of Sections 309(j)(2) and 337 of the Communications Act of 1934 As Amended, WT Docket No. 99-87, *Report and Order and Further Notice of Proposed Rule Making*, 15 FCC Rcd 22709 (1999).

and non-government entities and including emergency road services provided by not-for-profit organizations.[6] In this Section, the Congressional intent was merely to define a group of entities that would be exempt from auctions, rather than provide an all-inclusive definition of those entities that are considered traditional "public safety services." Moreover, Congress specifically noted that the definition in Section 309(j)(2) for purposes of determining what entities were exempt from auction was "much broader than the explicit definition for public safety services" included in Section 337(f) of the Communications Act:

> The conferees note that the public safety radio services exemption described herein is much broader than the explicit definition for "public safety services" contained in section 3004 of this title (adding new section 337(f)(1) of the Communications Act.[7]

Sections 309(j)(2) and 337(f) were part of the same act and Congress recognized and validated each one of these sections. Therefore, it would be contrary to Congressional intent to utilize the broader auction-related definition of "public safety radio services" to define who is eligible for public safety spectrum.

Limiting use of the band to traditional public safety entities would ensure that state and local emergency workers can perform their primary mission of protecting the safety of life, health, or property in a timely manner. As the Commission correctly notes, a broader definition "may result in congestion on the band, hindering the communications of emergency workers, and causing the traditional public safety users to compete for valuable spectrum."[8]

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[6] 47 U.S.C. § 309(j)(2).

[7] H.R. Conf. Rep. No. 105-217, 105th Cong., 1st Sess., at 572 (1997) ("Conference Report").

[8] FNPRM ¶ 34.

Allowing non-traditional public safety entities as eligibles would also create an interference problem. Public safety entities will use the 4.9 GHz band both at temporary incident locations as well as for permanent coverage area. Use of the band by non-public safety entities such as utilities on a wide-area basis would conflict with the temporary uses of public safety entities. Public safety entities cannot afford the luxury of going through a lengthy coordination process in the event of an emergency, natural disaster or any other incident that would require the immediate use of the band.

The Commission states that the services provided by some of the Section 309(j)(2) entities involve potential hazards for which reliable radio communications is an essential tool.[9] Therefore, the Commission seeks comments on the possibility of licensing part of the 4.9 GHz band pursuant to the Section 337 definition of eligibility, and part of the band pursuant to the Section 309(j)(2) definition of eligibility.[10] APCO opposes this approach, as it would force traditional public safety entities (*i.e.*, fire, police and emergency medical entities) to "compete" for spectrum with other entities. While Section 309(j)(2) entities may provide at least some safety-related functions, many are not "public safety" radio service providers. In fact, many of these entities are profit-making entities. Therefore, Congress' desire to exclude certain radio services from auctions should not be used as an excuse to dilute eligibility requirements in spectrum normally reserved for state and local government emergency agencies.

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[9] *Id.*¶ 33.

[10] *Id.*¶ 35.

However, APCO does recognize that there are times when interoperability between public safety responders and critical infrastructure entities such as utilities is necessary, particularly when safeguarding infrastructure, protecting citizens or responders from hazards or restoring service to affected areas. In those circumstances, utilities participating in joint emergency operations with eligible public safety entities should be afforded the ability to share resources for the ad-hoc establishment of disaster restoration facilities. The eligible entity would be the public safety entity, and the utility can enter into a memorandum of understanding with the eligible entity to share the facilities.

II. THE COMMISSION SHOULD IMPLEMENT RULES THAT ALLOW MOBILE AND SHORT-TERM FIXED USE TO SUPPORT LARGE-SCALE OR HIGH-IMPACT SPECIAL EMERGENCY SITUATIONS.

In order to prevent a spectrally inefficient allocation, the Commission seeks comment on the circumstances under which it should permit fixed operations on the 4.9 GHz band.[11] The Commission also seeks information on whether fixed applications on the band should consist of the traditional point-to-point microwave operations, more advanced point-to-multipoint services, or temporary fixed links that would allow communications between an incident scene and police headquarters.[12]

Short-term fixed operations should be allowed in the band. Currently, there is a tremendous need to have spectrum where short-term fixed facilities can be quickly set up for public safety use in support of large-scale or high-impact situations. There have been several high-impact emergencies in which short-term fixed facilities were necessary. For

[11] *Id.* ¶ 40

[12] *Id*.

example, the 4.9 GHz band would have been invaluable to establishing short-haul data links between the management support team and those on the field during the terrorist attacks on September 11. Presently, the only systems available for short-term fixed use are 2465 MHz spread spectrum transceivers that are shared with a myriad of commercial applications. Moreover, the need for non-permanent fixed facilities cannot be reliably fulfilled through commercial services.

Public safety agencies find it difficult to obtain spectrum for their existing radios, let alone adding new bandwidth for emerging technologies such as broadband. The availability of this band would provide such opportunity, particularly for fixed "hotspots" (*i.e.*, fixed-to-multipoint use). For example, automatic high-speed intranet file transfers to and from hotspots can allow for the download of maps and building layouts to mobile laptops in police or fire vehicles, large EMS files with patient medical history, emergency contact information of incident reports, wanted or missing persons' images, video clips of robberies, and many other potential applications. Therefore, it is critical that this band be allowed to for hotspots in both fixed and temporary locations.

On the other hand, APCO opposes use of the band for permanent fixed point-to-point microwave facilities, such as those used for "backhaul" or "backbone" communications links. With only 50 MHz of spectrum available in the band, allowing permanent fixed microwave point-to-point use would simply exhaust the frequencies available and relegate life-safety operations to unlicensed bands that are shared with other users. Coordination with permanent fixed operators will be extremely difficult to accomplish and public safety entities will not be able to perform their functions as quickly and reliably if permanent fixed use is allowed. The Commission should not

compromise the effectiveness of these services in the name of "licensee flexibility" or promoting technological developments.[13]

III. THE COMMISSION SHOULD ADOPT A CHANNELIZATION PLAN THAT IS FLEXIBLE ENOUGH TO ACCOMMODATE BOTH 802.11A AND OTHER TECHNOLOGIES.

The Commission seeks comment on a number of channelization plans, particularly the Motorola plan to divide the spectrum into two 20-25 megahertz blocks to accommodate broadband applications.[14] This spectrum has the potential to satisfy many public safety data applications. However, if that potential is to be realized, the channel plan must be flexible and designed to accommodate different technologies. The ability to send high-speed data wirelessly is relatively new to public safety users and all the potential applications are not known.

The principal technology that APCO currently envisions being used in this band is the IEEE 802.11a technology for high-speed data networks. Video surveillance both ground and air, using compression and digital modulation would be an alternate application.[15] Other agencies may want an ubiquitous wireless data network within their coverage boundaries that may require technologies other than 802.11a. Because of the

[13] In the event there is a need for fixed microwave point-to-point service for backhaul, particularly in sparsely populated areas, the Commission can accommodate such need through a waiver request on a case-by-case basis.

[14] FNPRM ¶¶ 42-44.

[15] APCO has filed comments in support of the Petitions of Los Angeles County Sheriff's Department and Microwave Radio Communications seeking reconsideration and clarification of provisions in the *Second Report and Order*, WT Docket No. 00-32, restricting aeronautical video operations in the 4.9 GHz band.

different technologies that can be used, it is essential that the band plan adopted be a flexible one.

Taking into consideration the need for flexibility, APCO proposes a channeling plan that incorporates both 1 MHz wide and 5 MHz wide channels, with aggregation of up to 30 MHz permitted. As previously stated, the technology APCO envisions being used in this band is IEEE 802.11a, which can operate within 20 MHz of bandwidth in the 5 GHz spectrum range.[16] Therefore, IEEE 802.11a would only allow two non-overlapping channels within the total 50 MHz bandwidth. Assuming the Commission decides to license the band on a jurisdictional basis as proposed below by APCO,[17] there could be three overlapping jurisdictional licenses in most areas. These would be city, county and State agencies. This mix of agencies and technologies may not allow an ubiquitous wireless network by one agency along with hotspots in fixed and temporary locations by other agencies. It will be hard to design an ubiquitous data network with IEEE 802.11a technology, as the cell size is 50 meters or less at full data rates. Also, video surveillance overlaid on top would cause even more interference.

If agencies want maximum data throughput within hotspots and sharing of channels among the agencies, a channeling scheme of 5 MHz - 20 MHz - 20 MHz - 5 MHz would be best. This scheme would allow video or data on the 5 MHz wide channels and the IEEE 802.11a hotspots on the 20 MHz wide channels. This

[16] *See 2.4 GHz and 5 GHz WLAN: Competing or Complementary?*, Mobilian Corporation, (May 1, 2002).

[17] *See* Section IV, *infra*.

channelization plan would also serve as a buffer on the lower portion of the band that is adjacent to the Navy's Cooperative Engagement Capability (CEC) operations.[18]

In order to accommodate a full range of data rates and provide enough channels to provide an ubiquitous data network (if required), the channelization plan divides the channels into five (5) 1 MHz wide channels, then eight (8) 5 MHz wide channels and five (5) more 1 MHz channels. By allowing any combination or aggregation of those channels up to 30 MHz, there will be significantly more flexibility to share and accommodate multiple technologies. APCO believes this channel scheme, including the ability to aggregate, as well as regional planning will result in the most efficient use of the band along with accommodating diverse and unknown technologies and applications.

PROPOSED BAND PLAN

Width (MHz)	**1**	**1**	**1**	**1**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**1**	**1**	**1**	**1**
Low Rate Data						CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8					
Video surveillance	Video Channel 1													Video Channel 2				
Low rate video	CH 1	CH 2	CH 3	CH 4	CH 5									CH 6	CH 7	CH 8	CH 9	CH 10
High Rate Data						Channel 1				Channel 2								

This table represents the channel spacing and some of the combinations and applications possible. Each region can adapt the aggregation to meet the needs of the region within the constraints of available technology.

[18] *See* FNPRM ¶¶ 59-60.

IV. THE COMMISSION SHOULD ISSUE LICENSES BASED ON THE JURISDICTIONAL AREA OF EACH APPLICANT, SUBJECT TO COORDINATION WITH ADJACENT LICENSEES AND REGIONAL PLANNING COMMITTEES.

The Commission seeks comment on the appropriate means of licensing the band for both fixed and mobile operations. For mobile operations, the Commission seeks comment on whether it should adopt a licensing scheme through geographic area, blanket licensing, regional planning committees, band managers, or whether it should allow unlicensed operations pursuant to Part 15 of the Commission's Rules with sales and marketing restrictions.[19] The Commission also seeks comments on the best way to license fixed use by the public safety community.[20]

As an initial matter, APCO strongly opposes a "blanket licensing or unlicensed operation" approach. Having "named licensees" is the only effective way to ensure that there is proper coordination among the various agencies that respond to an incident or emergency. Moreover, the existence of mobile and fixed users operating without licenses would further complicate the coordination process. Unlike other services that operate in unlicensed bands, public safety entities require the certainty provided by a coordination process.

The Commission should license the band on a jurisdictional basis; that is, the geographical area encompassed by the jurisdiction area covered by the licensed local city county, or state entity. APCO utilizes the term "jurisdictional basis" to distinguish it

[19] *Id.* ¶¶ 46-56.

[20] *Id*. ¶¶ 57-58.

from the traditional "geographic" licensing based on economic areas that the Commission utilizes for some commercial services. While licensing by economic areas makes sense for commercial services, it does not make sense for public safety entities that have responsibility for clearly delineated jurisdictional areas that may have little or no relationship to a "economic area."

The relevant jurisdictional areas for licenses should include states, counties, and cities. The Commission should not limit jurisdictional licenses to states, since many, if not most public safety operations are actually at the local city and county level, and those local entities are the most likely licensees of the new 4.9 GHz service. Indeed, many of the applications currently under consideration are most appropriate for densely populated "hot spots" and other locations in urbanized areas under the direct jurisdiction of local city and county public safety agencies.

APCO also supports licensing through the use of regional planning committees. The regional planning approach, like the one adopted in the 700 MHz and 800 MHz bands, will afford the flexibility to accommodate a wide variety of communications requirements in different areas.[21] Under the regional planning approach, each region will should have as much autonomy as possible to develop plans that meet different communications needs. This approach will also encourage broader coordination in the public safety community and speed up the planning process and increase

[21] *See* Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services, *Report and Order*, 3 FCC Rcd 905 (1987); Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152 (1998).

responsiveness to the unique local needs of the public safety community. The regional planning committees should also have procedures in place that will allow them to coordinate on short notice in the event that more than one jurisdiction responds to the same incident or emergency situation.

Because there are already regional planning committees for both the 700 MHz and the 800 MHz bands, the Commission should consider consolidating these regional planning committees so that each one of the 55 existing regional planning committees for each band will handle the planning for 700 MHz, 800 MHz and 4.9 GHz bands. This approach will avoid the need for having three separate sets of overlapping committees, thus maximizing resources and promoting expertise on these issues.

CONCLUSION

APCO urges the Commission to adopt rules that will limit use of the 4.9 GHz band to traditional public safety entities as contemplated in Section 337(f), allow both mobile and short-term fixed use, implement a flexible channelization plan that will allow the use of IEEE 802.11a and other technologies, and issue licenses based on the jurisdictional area of each applicant, subject to coordination with adjacent licensees and regional planning committees.

Respectfully submitted,

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